



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Memorandum

February 23, 2009

CONSTRUCTION MEMORANDUM 09-05

TO: District Deputy Commissioners
Technical Services Directors
District Construction Engineers
District Testing Engineers
District Area Engineers
Project Engineers/Supervisors

FROM: Mark A. Miller, Director *Mark A. Miller*
Division of Construction Management

SUBJECT: HMA Cost Savings Measures

Revisions to the 400 and 900 Sections of the Standard Specifications were approved by the Standards Committee at its November 2008 meeting. Implementation of these revisions should result in cost savings for the Department. Recurring Special Provisions 400-R-553, HMA Revisions, and 904-R-560, Aggregates, incorporate these changes and will be placed in contracts beginning with lettings on or after February 1, 2009.

INDOT and industry have agreed on the method to implement the provision on active contracts. District Construction should discuss with contractors on active contracts to determine if the contractor is interested in incorporating any of the cost savings specifications changes to the contract via change order. The contractor is not required to incorporate any of these revised specifications and if the contractor declines, the contract will continue to be performed in accordance with the specifications currently in effect for that contract.

If the contractor wishes to incorporate any of the revised specifications, the contractor is responsible for identifying which of revised specifications to add to the contract and which existing pay items are to be covered by the changes.

The specification changes that are eligible for inclusion in an active contract are in the following categories:

1. Category 1 – Additional Allowable RAP in Surface Mixtures
 - a. 15% Maximum in 401 QC/QA HMA Category 3, 4, and 5 mixtures and 410 SMA mixtures
 - b. 15% Maximum in 402 HMA Type C or D mixtures
2. Category 2 – Open Graded Mixture Revisions
 - a. 15% Maximum RAP in mixtures utilizing PG 76-22
 - b. PG 70-22 may be utilized with addition of cellulose fibers
 - c. PG 70-22 may be utilized with 15% RAP and addition of cellulose fibers
3. Category 3 – Increase Maximum Lay Rate Requiring Adjacent Lane Matching within Same Day to 220 #/syd (120 kg/m²)
4. Category 4 – Allow Use of Steel Slag in RAP, Base, and Intermediate Mixtures

INDOT and industry have agreed on the appropriate credit for each of the above specification revisions. These credits are listed below:

| Proposed Specification Change Category | Mixture Pay Item Unit Price Credit |
|--|---|
| 1. Category 1 – Additional RAP in Surface Mixtures | \$2.40/ton (\$2.65/Mg) |
| 2. Category 2 – Open Graded Mixture Revisions | |
| • PG 76-22 OG Mixture with 15% Maximum RAP, or | \$1.40/ton (\$1.55/Mg) |
| • PG 70-22 OG Mixture with Fibers, or | \$0.25/ton (\$0.30/Mg) |
| • PG 70-22 OG Mixture with 15% Maximum RAP & Fibers | \$1.50/ton (\$1.65/Mg) |
| 3. Category 3 – Increased Lay Rate Requiring Adjacent Lane Match | \$1.00/ton (\$1.10/Mg) |
| 4. Category 4 – Steel Slag in RAP, Base, and Intermediate Mixtures | No Credit (Zero Dollar Change Order) |

The contractor may elect to incorporate revised specifications related to any or all of the above categories. If a contractor elects to pursue multiple revised specifications that affect the same pay item, the credit to the contract will be the sum of the appropriate credits tabulated above. For example, if a contractor elects to incorporate the revision allowing additional RAP in a 12.5 mm Surface mixture placed at 220 #/syd and also decides to incorporate the revision that allows for placement of that mixture without matching the adjacent lane the same day, the appropriate credit to the contract would be \$3.40/ton for the associated pay item (\$2.40/ton + \$1.00/ton).

The revised specifications associated with each of the above categories are attached to this memorandum. The PE/PS should attach only the specifications related to the changes requested by the Contractor to the change order.

When processing the change order, the PE/PS should delete the estimated remaining quantity of the original contract pay item, and then add a new pay item with the same estimated quantity. The new pay item should utilize the original pay item name, but must include a supplemental description of “2009 HMA Revision”.

If there are any questions regarding this memo, please contact the Division of Construction Management Field Engineer for your District.

Attachments

MAM/jgj

CATEGORY 1—ADDITIONAL RAP IN SURFACE MIXTURES

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 150, DELETE AND INSERT AS FOLLOWS:

~~Recycled materials shall not be used in ESAL Category 3, 4, or 5 surface mixtures or open graded mixtures.~~ *A maximum of 15.0% RAP or 3.0% ARS by weight (mass) of the total mixture may be used in ESAL category 3, 4, or 5 surface mixtures. The recycled material for the ESAL category 3, 4, or 5 surface mixtures shall be 100% passing the 3/8 in. (9.5 mm) sieve and 95 to 100% passing the No. 4 (4.75 mm) sieve.*

SECTION 402, BEGIN LINE 118, DELETE AND INSERT AS FOLLOWS:

~~Recycled materials may be used in all mixtures except type C and type D surface mixtures.~~ *A maximum of 15.0% RAP or 3.0% ARS by weight (mass) of the total mixture may be used in type C and D surface mixtures provided the recycled material is 100% passing the 3/8 in. (9.5 mm) sieve and 95% to 100% passing the No. 4 (4.75 mm) sieve.*

SECTION 410, BEGIN LINE 121, DELETE AND INSERT AS FOLLOWS:

410.06 Recycled Materials

~~Mainline surface shall not contain recycled materials.~~ *Recycled materials may consist of reclaimed asphalt pavement, RAP, or asphalt roofing shingles, ARS, or a blend of both. RAP shall be the product resulting from the cold milling or crushing of an existing HMA pavement. The recycled material shall be 100% passing the 3/8 in. (9.5 mm) sieve and 95% to 100% passing the No. 4 (4.75 mm) sieve when entering the HMA plant. ARS shall consist of waste from a shingle manufacturing facility. No tear-off materials from roofs will be allowed. ARS shall be stockpiled separately from other materials.*

Recycled materials may be used as a substitute for a portion of the new materials required to produce mainline surface. When only RAP is used in the mixture, the RAP shall not exceed 15.0% by weight (mass) of the total mixture. When only ARS is used in the mixture, the ARS shall not exceed 3.0% by weight (mass) of the total mixture. For substitution or use, 1.0% of ARS is considered equal to 5.0% RAP. The percentages of recycled materials shall be as specified on the DMF.

The combined aggregate properties of a mixture with recycled materials shall be determined in accordance with ITM 584 and shall be in accordance with 904. Gradations of the combined aggregates shall be in accordance with 410.05.

Mixtures containing RAP shall use the same grade of binder as specified.

CATEGORY 2—OG MIXTURE REVISIONS

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 17, DELETE AND INSERT AS FOLLOWS:

MATERIALS

401.03 Materials

Materials shall be in accordance with the following:

| | |
|---|------------------------------|
| Asphalt Materials | |
| PG Binder | 902.01(a) |
| Coarse Aggregates | 904 |
| Base Mixtures – Class D or Higher | |
| Intermediate Mixtures – Class C or Higher | |
| *Surface Mixtures – Class B or Higher | |
| Fibers | AASHTO MP-8 M 325 |

SECTION 401, BEGIN LINE 97, DELETE AND INSERT AS FOLLOWS:

The percent draindown of open graded mixtures shall not exceed 0.30% in accordance with AASHTO T 305. Open graded mixtures may incorporate fibers. *The binder for open graded mixtures containing fibers may be reduced by one temperature classification, 6°C, for the upper temperature classification. The fiber type and minimum dosage rate shall be in accordance with AASHTO M 325.*

SECTION 401, BEGIN LINE 150, DELETE AND INSERT AS FOLLOWS:

~~Recycled materials shall not be used in ESAL Category 3, 4, or 5 surface mixtures or open graded mixtures.~~ *A maximum of 15.0% RAP or 3.0% ARS by weight (mass) of the total mixture may be used in open graded mixtures.*

CATEGORY 3—INCREASE LAY RATE REQUIRING MATCH OF ADJACENT LANE

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 320, DELETE AND INSERT AS FOLLOWS:

401.14 Spreading and Finishing

Planned HMA courses greater than ~~165 lb/syd (90 kg/m²)~~ 220 lb/syd (120 kg/m²) placed under traffic, shall be brought up even with each adjacent lane at the end of each work day. Planned HMA courses less than or equal to ~~165 lb/syd (90 kg/m²)~~ 220 lb/syd (120 kg/m²) shall be brought forward concurrently, within practical limits, limiting the work in one lane to not more than one work day of production before moving back to bring forward the adjacent lane.

SECTION 410, BEGIN LINE 240, DELETE AND INSERT AS FOLLOWS:

Planned SMA courses greater than ~~165 lb/syd (90 kg/m²)~~ 220 lb/syd (120 kg/m²) placed under traffic, shall be brought up even with each adjacent lane at the end of each work day. Planned SMA courses less than or equal to ~~165 lb/syd (90 kg/m²)~~ 220 lb/syd (120 kg/m²) shall be brought forward concurrently, within practical limits, limiting the work in one lane to not more than one work day of production before moving back to bring forward the adjacent lane.

CATEGORY 4—USE OF STEEL FURNACE SLAG IN RAP, BASE, AND INTERMEDIATE MIXTURES

The Standard Specifications are revised as follows:

SECTION 904, BEGIN LINE 65, DELETE AND INSERT AS FOLLOWS:

Steel furnace (SF) slag ~~shall only~~ *may* be used in aggregate shoulders, HMA surface or SMA surface mixtures, dumped riprap, and snow and ice abrasives. *SF slag coarse aggregate may be used in HMA base and HMA intermediate mixtures if the deleterious content is less than 4.0 % when tested in accordance with ITM 219. RAP with steel slag may be used in accordance with 401.06, 402.08 and 410.06.*